

6.4b Exponential Growth and Decay

Newton's Law of Cooling: The rate at which an object's temperature is changing is directly proportional to the difference between its temperature and the temperature of the surrounding medium.

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A hard boiled egg at 98 degrees Celsius is put in a pan under running 18 degree water to cool. After 5 minutes, the egg's temperature is found to be 38 degrees. How much longer will it take the egg to reach 20 degrees?

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Using Newton's Law of Cooling

A temperature probe is removed from a cup of coffee and placed in water that has a temperature of 4.5 degrees celsius. See the data on the next page.

	A	B	C	D
	time	temp		
1	2	64.8		
2	5	49		
3	10	31.4		
4	15	22		
5	20	16.5		

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Separation of Variables

Solve for y if $\frac{dy}{dx} = (xy)^2$ and $y=1$ when $x=1$

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